Mr. Jason Balgooyen Prince Manufacturing, Inc. P. O. Box 430 Waterloo, Indiana 46793

Re: Registered Construction and Operation Status, 033-11864-00068

Dear Mr. Balgooyen:

Prince Manufacturing, Inc. has submitted an application on February 7, 2000 in compliance with the new permitting requirements under 326 IAC 2-1.1. The plant consists of two (2) plants, plant 2 located at 205 Industrial Parkway, Waterloo, Indiana and this plant 1 located at 105 Industrial Parkway. Plant 2 which manufactures plastic bowling bowl return hoods will be dismantled, and the processes be moved to plant 1. Plant 1 is currently permitted to manufacture military metal parts, and will now consist of the following emission units and control equipment. Based on the data submitted and the provisions in 326 IAC 2-5.5, this plant is classified as registered:

- (a) Three (3) paint booths, identified as PB 1, PB 2 and PB 3. These paint booths are capable of painting 60 chromated aluminum military radio chassis per hour. These paint booths are equipped with air atomization spray system. The overspray PM emission from these booths is controlled by dry filters;
- (b) One (1) paint booth, identified as PB 4. This paint booth is capable of painting 6 plastic bowling bowl return hoods per hour. This paint booth is equipped with air atomization spray system. The overspray PM emission from this booth is controlled by dry filters;
- (c) One (1) powder coating booth, capable of coating 30 pounds of powder coat paint to 400 military parts per hour. A cyclone and a baghouse are installed to collect the powder and recirculate back to the process.
- (d) Eight (8) natural gas-fired tube heaters, identified as heaters 1 through 8, each with a heat input rate of 0.04 million British Thermal units (mmBtu/hr);
- (e) One (1) natural gas-fired 3.8 mmBtu/hr 5th stage washer-1st stage tank heater ID9;
- (f) One (1) natural gas-fired 3.8 mmBtu/hr 5th stage washer-3rd stage tank heater ID10;
- (g) One (1) natural gas-fired 1.5 mmBtu/hr 5th stage washer-5th stage tank heater ID11;
- (h) One (1) natural gas-fired dry off/cure oven ID12, with a heat input rate of 4.56 mmBtu/hr;
- (i) Two (2) air make-up unit #1, ID 13 and ID14, each has a heat input rate of 3.96 mmBtu/hr;
- (j) One (1) 0.80 mmBtu/hr pyrolysis cleaning furnace ID31, with a built-in afterburner emission control. This furnace is rated at 20 pounds of waste per hour and from 300 to 500 pounds of steel parts per batch. This furnace is used to clean metal hangers and

Indiana Department of Environmental Management Office of Air Management

Technical Support Document (TSD) for a Registration

Source Background and Description

Source Name: Prince Manufacturing, Inc.

Source Location: 105 Industrial Parkway, Waterloo, Indiana 46793

County: DeKalb SIC Code: 3479

Registration No.: 033-11864-00068
Permit Reviewer: Aida De Guzman

The Office of Air Management (OAM) has reviewed an application from Prince Manufacturing, Inc.. The plant has submitted an application in compliance with the new permitting requirements under 326 IAC 2-1.1. The plant consists of two (2) plants, plant 2 located at 205 Industrial Parkway and this plant 1 located at 105 Industrial Parkway. Plant 2 which manufactures plastic bowling bowl return hoods will be dismantled, and the processes be moved to plant 1. Plant 1 is currently permitted to manufacture military metal parts, and will now consist of the following emission units and control equipment:

- (a) Three (3) paint booths, identified as PB 1, PB 2 and PB 3. These paint booths are capable of painting 60 chromated aluminum military radio chassis per hour. These paint booths are equipped with air atomization spray system. The overspray PM emission from these booths is controlled by dry filters;
- (b) One (1) paint booth, identified as PB 4. This paint booth is capable of painting 6 plastic bowling bowl return hoods per hour. This paint booth is equipped with air atomization spray system. The overspray PM emission from this booth is controlled by dry filters:
- (c) One (1) powder coating booth, capable of coating 30 pounds of powder coat paint to 400 military parts per hour. A cyclone and a baghouse are installed to collect the powder and recirculate back to the process.
- (d) Eight (8) natural gas-fired tube heaters, identified as heaters 1 through 8, each with a heat input rate of 0.04 million British Thermal units (mmBtu/hr);
- (e) One (1) natural gas-fired 3.8 mmBtu/hr 5th stage washer-1st stage tank heater ID9;
- (f) One (1) natural gas-fired 3.8 mmBtu/hr 5th stage washer-3rd stage tank heater ID10;
- (g) One (1) natural gas-fired 1.5 mmBtu/hr 5th stage washer-5th stage tank heater ID11;
- (h) One (1) natural gas-fired dry off/cure oven ID12, with a heat input rate of 4.56 mmBtu/hr;
- (i) Two (2) air make-up unit #1, ID 13 and ID14, each has a heat input rate of 3.96 mmBtu/hr;
- (j) One (1) 0.80 mmBtu/hr pyrolysis cleaning furnace ID31, with a built-in afterburner

emission control. This furnace is rated at 20 pounds of waste per hour and from 300 to 500 pounds of steel parts per batch. This furnace is used to clean metal hangers and hooks such as used on conveyorized paint lines by burning the paint coated on them

Source Definition

Prince Manufacturing (formerly American Finishing Corp.) has two (2) plants, one is located at 105 Industrial Parkway, Waterloo, Indiana 46793, which manufactures plastic bowling ball return hoods, and one (1) located at 205 Industrial Parkway, Waterloo, Indiana 46793, which manufactures military radio chassis.

The source has indicated that the plant located at 205 Industrial Parkway, Waterloo, Indiana will be dismantled, and the facility will ultimately be used for other operations, leased or sold. The processes that are in this plant will be moved to plant located at 105 Industrial Parkway, Waterloo, Indiana.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on February 7, 2000.

Emission Calculations

- (a) Natural Gas Combustion Emissions: See Page 1 of 2 TSD Appendix A for detailed calculations.
- (b) Pyrolysis Cleaning Furnace Emissions:

This furnace is used to clean metal hangers and hooks such as used on conveyorized paint lines by burning the paint coated on them. This furnace has a built-in afterburner. This furnace is rated at 20 pounds of waste per hour and from 300 to 500 pounds of steel parts per batch. The emissions are based from the stack tests made by the manufacturer for this type of pyrolysis furnace (see below table).

Pollutant	Emissions (lb/hr)	Emissions (tons/yr)
Particulate Matter (PM)	0.027	0.12
NOx	0.054	0.24
voc	0.035	0.15
SO2	0.004	0.02
СО	0.10	0.44

- (c) Wet Painting Operation: See Page 2 of 2 TSD Appendix A for VOC and PM overspray detailed calculations, and Page 3 of 3 TSD Appendix A for detailed HAPs calculations.
- (d) Powder Coating Emissions:

The powder coating operating is done in a tightly enclosed room, where no stack is installed. A Cyclone and a baghouse are installed to collect the powder and recirculate back to the process.

If ever PM/PM10 escaped from the powder room into the building, it will be negligible in amount and will not exhaust outside into the atmosphere.

Potential To Emit

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential To Emit (tons/year)
PM	9.4
PM-10	9.88
SO ₂	0.2
VOC	13.5
CO	8.84
NO _x	10.14

HAPs	Potential To Emit (tons/year)				
Hexamethylene-1,6-diisocyanate	0.0				
MIK	1.5				
Toluene	0.64				
2,4-Toluene diisocyanate	0.01				
Xylenes	0.76				
Chromium Compounds	2.10				
TOTAL	5.01				

(a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of volatile organic compounds (VOC) are well below 100 tons per year. Therefore, the source is **not** subject to the provisions of 326 IAC 2-7.

Justification for the Level of Approval

The source is re-permitted and requires a Registration, pursuant to 326 IAC 2-5.5-1, because the source has a PTE of 13.5 tons/year VOC and 10.14 ton/year NOx, each PTE is greater than 10 tons per year but less than 25 tons per year.

Limited Potential to Emit

The table below summarizes the total potential to emit, reflecting all limits, of the significant

	Limited Potential to Emit (tons/year)										
Process/facility	PM PM-10 SO ₂ VOC CO NO _X										
Natural gas combustion	0.2	0.8	0.1	0.5	8.4	9.9	0.0				
Paint booths	9.08	9.08	0.0	12.84	0.0	0.0	5.01				
Pyrolysis	0.12 0.0 0.02		0.02	0.15	0.44	0.24	0.0				
Total Emissions	9.4	9.88	0.12	13.5	8.84	10.14	5.01				

County Attainment Status

The source is located in DeKalb County.

Pollutant	Status (attainment, maintenance attainment, or unclassifiable; severe, moderate, or marginal nonattainment)
PM-10	attainment
SO ₂	attainment
NO_2	attainment
Ozone	attainment
СО	attainment
Lead	not determined

- (a) Volatile organic compounds (VOC) and oxides of nitrogen (NOx) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. DeKalb County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) DeKalb County has been classified as attainment or unclassifiable for all the other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

Since the source is being re-permitted based on the new permitting requirements under 326 IAC 2-1, which took effect on December 25, 1998, it will be categorized as a new source. New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity):

Permit Reviewer: Aida De Guzman

Pollutant	Emissions (ton/yr)
PM	9.4
PM10	9.88
SO ₂	0.12
VOC	13.5
CO	8.84
NO_x	10.14
HAPs	5.01

(a) This re-permitted source is **not** a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This re-permitted source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year.
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

Federal Rule Applicability

- (a) New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60): There are no NSPS applicable to this source.
- (b) National Emission Standards for Hazardous Air Pollutants (NESHAPs) (326 IAC 14 and 40 CFR Part 63).

There are no NESHAPs that can possibly be applicable to these tanks.

State Rule Applicability - Entire Source

- (a) 326 IAC 2-6 (Emission Reporting)
 This source is not subject to 326 IAC 2-6 (Emission Reporting), because its VOC potential to emit of 6.99 tons/year are well below one hundred (100) tons per year.
- (b) 326 IAC 5-1 (Visible Emissions Limitations)
 Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3
 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:
 - (1) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
 - (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

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(a) 326 IAC 8-2-9 (Miscellaneous Metal Coating)

This rule applies to facilities of which construction commences after July 1, 1990, of the types described in section 9 of this rule located in any county and have an actual emissions of greater than 15 pounds per day before add-on control.

Paint booths PB 1, PB 2, and PB 3, which are painting chromated aluminum military radio chassis are subject to 326 IAC 8-2-9, because each booth has the actual emissions of greater than 15 pounds per day.

Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), the volatile organic compound (VOC) content of coating delivered to the applicator at paint booths PB 1, PB 2, and PB 3 shall be limited to 3.5 pounds of VOCs per gallon of coating less water, for forced warm air dried coatings.

Solvent sprayed from application equipment during cleanup or color changes shall be directed into containers. Such containers shall be closed as soon as such solvent spraying is complete, and the waste solvent shall be disposed of in such a manner that evaporation is minimized.

All paint booths PB 1, PB 2, and PB 3 are in compliance with this rule, because each booth doesn't emit greater than 3.5 pounds of VOCs per gallon of coating less water (see Page 2 of 3 TSD Appendix A for emission calculation).

(b) 326 IAC 8-1-6 (General Reduction Requirements)

This rule is applicable to new facilities existing as of January 1, 1980, which have potential VOC emissions of 25 tons per year, located anywhere in the state, which are not otherwise regulated by other provisions of article 326 IAC 8.

Paint booth PB 4, which is painting plastic bowling bowl return hoods is not subject to 326 IAC 8-1-6, because its potential VOC emission of 3.09 tons per year is less than 25 tons per year.

(c) 326 IAC 6-3-2 (Process Operations)

The PM overspray emissions from paint booths PB 1, PB 2, PB 3, and PB 4 shall be limited using the following equation:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

 $E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and P = process weight rate in tons per hour

(d) 326 IAC 2-4.1-1 (New Source Toxics Control)

This rule is not applicable to this source because it does not emit any single HAP at a rate of 10 tons per year or greater nor emit combined HAPs at a rate of 25 tons per year or greater, and it is not a new source (see HAPs calculations on page 2 of this TSD).

(e) 326 IAC 4-2-1 (Incinerators)

The pyrolysis cleaning furnace, ID31 is subject to the requirements under 326 IAC 4-2-2. The pyrolysis cleaning furnace, ID31 shall:

- (1) consists of a primary and secondary chambers or the equivalent;
- (2) be equipped with a primary burner unless burning wood products:
- (3) comply with 326 IAC 5-1 and 326 IAC 2;
- be maintained properly as specified by the manufacturer and approved by the commissioner:

- (5) be operated according to the manufacturer's recommendations and only burn waste approved by the commissioner;
- (6) comply with other state and/or local rules or ordinances regarding installation and operation of incinerators;
- (7) be operated so that emissions of hazardous material including, but not limited to viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;
- (8) not emit particulate matter in excess of:
 - (a) five-tenths (0.5) pounds of particulate per one thousand (1,000) pounds of dry exhaust gas at standard condition corrected to fifty percent (50%) excess air: and
- (9) not create a nuisance or a fire hazard.

If any of the above result, the burning shall be terminated immediately.

The pyrolysis cleaning furnace is guaranteed to emit 0.25 or less pounds of particulate per one thousand (1,000) pounds of dry exhaust gas at standard condition corrected to fifty percent (50%) excess air.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 188 hazardous air pollutants (HAPs) set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

(a) This source will emit levels of air toxics less than those which constitute a major source according to Section 112 of the 1990 Clean Air Act Amendments.

Conclusion

The operation of this plant that manufactures plastic bowling bowl return hoods and chromated aluminum military radio chassis shall be subject to the conditions of the attached **Registration 033-11864-00068**.

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hooks such as used on conveyorized paint lines by burning the paint coated on them

The following conditions shall be applicable:

(a) Volatile Organic Compound (VOC) [326 IAC 8-2-9]

Pursuant to 326 IAC 8-2-9 (Miscellaneous Metal Coating Operations), the volatile organic compound (VOC) content of coating applied to the chromated aluminum military radio chassis from paint booths PB1, PB2 and PB3 shall be limited to 3.5 pounds of VOCs per gallon of coating less water, as delivered to the applicator for any calender day, for forced warm air dried coatings.

Solvent sprayed from application equipment during cleanup or color changes shall be directed into containers. Such containers shall be closed as soon as such solvent spraying is complete, and the waste solvent shall be disposed of in such a manner that evaporation is minimized.

(b) Volatile Organic Compound (VOC) [326 IAC 8-1-6]

Any change or modification to paint booth PB4 which may increase its potential VOC emissions to 25 tons per year or more from the equipment covered in this approval must be approved by the Office of Air Management (OAM) before such change may occur and be subject to 326 IAC 8-1-6 (General Reduction Requirements).

(c) Particulate Matter (PM) [326 IAC 6-3-2(c)]

Pursuant to 326 IAC 6-3-2, the PM overspray emissions from the four (4) paint booths, PB1, PB2, PB3 and PB4 shall not exceed the pound per hour emission rate established as E in the following formula:

Interpolation and extrapolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

 $E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

(d) Opacity Limitations

Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

- (1) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (2) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuos opacity monitor in a six (6) hour period.

(a) Incinerators Requirements

Pursuant to 326 IAC 4-2-2, the pyrolysis cleaning furnace, ID31 shall:

- (1) consists of a primary and secondary chambers or the equivalent;
- (2) be equipped with a primary burner unless burning wood products;
- (3) comply with 326 IAC 5-1 and 326 IAC 2;
- (4) be maintained properly as specified by the manufacturer and approved by the commissioner:

(5) be operated according to the manufacturer's recommendations and only burn waste approved by the commissioner:

- (6) comply with other state and/or local rules or ordinances regarding installation and operation of incinerators;
- (7) be operated so that emissions of hazardous material including, but not limited to viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;
- (8) not emit particulate matter in excess of:
 - (a) five-tenths (0.5) pounds of particulate per one thousand (1,000) pounds of dry exhaust gas at standard condition corrected to fifty percent (50%) excess air: and
- (9) not create a nuisance or a fire hazard.

If any of the above result, the burning shall be terminated immediately.

This registration revises the source's construction and operation permit issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Management that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3)). The annual notice shall be submitted to:

Compliance Data Section Office of Air Management 100 North Senate Avenue P.O. Box 6015 Indianapolis, IN 46206-6015

no later than March 1 of each year, with the annual notice being submitted in the format attached.

Prince Manufacturing, Inc. Waterloo, Indiana 00068

Reviewer: Aida De Guzman

Page 4 of 5 Registration 033-11864-

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Management (OAM) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,

Paul Dubenetzky, Chief Permits Branch Office of Air Management

APD

cc: File - DeKalb County

DeKalb County Health Department Air Compliance - Doyle Houser Permit Tracking - Janet Mobley

Technical Support and Modeling - Michele Boner

Compliance Data Section - Karen Nowak

Waterloo, Indiana Registration 033-11864-

00068

Reviewer: Aida De Guzman

Registration Annual Notification

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

Company Name:	Prince Manufacturing, Inc.
Address:	105 Industrial Parkway
City:	Waterloo
Authorized individual:	Jason Balgooyen
Phone #:	(219) 837-7972
Registration #:	033-11864-00068

I hereby certify that Prince Manufacturing, Inc. is still in operation and is in compliance with the requirements of Registration **033-11864-00068**.

Name (typed):	
Title:	
Signature:	
Date:	

excess of the following emissions limits:

(1) 43 ng/J (0.10 lb/million Btu) heat input if the affected facility has an annual capacity factor for wood greater than 30 percent (0.30); or

(2) 130 ng/J (0.30 lb/million Btu) heat input if the affected facility has an annual capacity factor for wood of 30 percent (0.30) or less and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for wood of 30 percent (0.30) or less.

- (c) On and after the date on which the initial performance test is completed or required to be completed under \$60.8 of this part, whichever date comes first, no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 million Btu/hr) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity.
- (d) The PM and opacity standards under this section apply at all times, except during periods of startup, shutdown, or malfunction.

§ 60.44c Compliance and performance test methods and procedures for sulfur dioxide.

- (a) Except as provided in paragraphs (g) and (h) of this section and in $\S60.8(b)$, performance tests required under $\S60.8$ shall be conducted following the procedures specified in paragraphs (b), (c), (d), (e), and (f) of this section, as applicable. Section 60.8(f) does not apply to this section. The 30-day notice required in $\S60.8(d)$ applies only to the initial performance test unless otherwise specified by the Administrator.
- (b) The initial performance test required under $\S60.8$ shall be conducted over 30 consecutive operating days of the steam generating unit. Compliance with the percent reduction requirements and SO_2 emission limits under $\S60.42c$ shall be determined using a 30-day average. The first operating day included in the initial performance test shall be scheduled within 30 days after

achieving the maximum production rate at which the affect facility will be operated, but not later than 180 days after the initial startup of the facility. The steam generating unit load during the 30-day period does not have to be the maximum design heat input capacity, but must be representative of future operating conditions.

- (c) After the initial performance test required under paragraph (b) and $\S60.8$, compliance with the percent reduction requirements and SO₂ emission limits under $\S60.42c$ is based on the average percent reduction and the average SO₂ emission rates for 30 consecutive steam generating unit operating days. A separate performance test is completed at the end of each steam generating unit operating day, and a new 30-day average percent reduction and SO₂ emission rate are calculated to show compliance with the standard.
- (d) If only coal, only oil, or a mixture of coal and oil is combusted in an affected facility, the procedures in Method 19 are used to determine the hourly SO_2 emission rate (E_{ho}) and the 30-day average SO_2 emission rate (E_{ao}). The hourly averages used to compute the 30-day averages are obtained from the continuous emission monitoring system (CEMS). Method 19 shall be used to calculate E_{ao} when using daily fuel sampling or Method 6B.
- (e) If coal, oil, or coal and oil are combusted with other fuels:
- (1) An adjusted E_{ho} (E_{ho} o) is used in Equation 19–19 of Method 19 to compute the adjusted E_{ao} (E_{ao} o). The E_{ho} o is computed using the following formula:

 $E_{ho}o=[E_{ho}-E_{w}(1-X_{k})]/X_{k}$

where:

 $E_{ho}o$ is the adjusted $E_{ho},\ ng/J$ (lb/million Btu)

 E_{ho} is the hourly SO_2 emission rate, ng/J (lb/million Btu)

 $E_{\rm w}$ is the SO_2 concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 9, ng/J (lb/million Btu). The value $E_{\rm w}$ for each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure $E_{\rm w}$ if the owner or operator elects to assume $E_{\rm w}$ =0.

 X_k is the fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable pro-

cedures in Method 19.

§60.44c

- (2) The owner or operator of an affected facility that qualifies under the provisions of \$60.42c(c) or (d) [where percent reduction is not required] does not have to measure the parameters E_w or X_k if the owner or operator of the affected facility elects to measure emission rates of the coal or oil using the fuel sampling and analysis procedures under Method 19.
- (f) Affected facilities subject to the percent reduction requirements under $\S 60.42c(a)$ or (b) shall determine compliance with the SO_2 emission limits under $\S 60.42c$ pursuant to paragraphs (d) or (e) of this section, and shall determine compliance with the percent reduction requirements using the following procedures:
- (1) If only coal is combusted, the percent of potential SO_2 emission rate is computed using the following formula:

 $\%P_s{=}100(1{\,-\,}\%R_g/100)\,(1{\,-\,}\%R_f/100)$ where

 $%P_{s}$ is the percent of potential SO_{2} emission rate, in percent

 $\%R_{\rm g}\,$ is the \dot{SO}_2 removal efficiency of the control device as determined by Method 19, in percent

 $\%R_f$ is the SO_2 removal efficiency of fuel pretreatment as determined by Method 19, in percent

- (2) If coal, oil, or coal and oil are combusted with other fuels, the same procedures required in paragraph (f)(1) of this section are used, except as provided for in the following:
- (i) To compute the $\mbox{\%P}_s$, an adjusted $\mbox{\%R}_g$ ($\mbox{\%R}_g$ o) is computed from E_{ao} o from paragraph (e)(1) of this section and an adjusted average SO_2 inlet rate (E_{ai} o) using the following formula:

 $R_{g}o{=}100\ [1.0-\ E_{ao}o/E_{ai}o)]$ where:

 $\%R_go~$ is the adjusted $\%R_g,$ in percent $E_{ao}o~$ is the adjusted $E_{ao},~ng/J$ (lb/million

Btu) $E_{ai}o \quad is \quad the \quad adjusted \quad average \quad SO_2 \quad inlet$

rate, ng/J (lb/million Btu) (ii) To compute E_{ai} o, an adjusted hourly SO_2 inlet rate (E_{hi} o) is used. The E_{hi} o is computed using the following

 $E_{hi}o=[E_{hi}-E_{w}(1-X_{k})]/X_{k}$

formula:

 $E_{hi}o$ is the adjusted $E_{hi},\ ng/J$ (lb/million Btu)

 E_{hi} is the hourly SO_2 inlet rate, ng/J (lb/million Btu)

- $E_{\rm w}$ is the SO_2 concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 19, ng/J (lb/million Btu). The value $E_{\rm w}$ for each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure $E_{\rm w}$ if the owner or operator elects to assume $E_{\rm w}$ = $\frac{1}{2}$
- X_k is the fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable procedures in Method 19.
- (g) For oil-fired affected facilities where the owner or operator seeks to demonstrate compliance with the fuel oil sulfur limits under §60.42c based on shipment fuel sampling, the initial performance test shall consist of sampling and analyzing the oil in the initial tank of oil to be fired in the steam generating unit to demonstrate that the oil contains 0.5 weight percent sulfur or less. Thereafter, the owner or operator of the affected facility shall sample the oil in the fuel tank after each new shipment of oil is received, as described under §60.46c(d)(2).
- (h) For affected facilities subject to \$60.42c(h)(1), (2), or (3) where the owner or operator seeks to demonstrate compliance with the SO_2 standards based on fuel supplier certification, the performance test shall consist of the certification, the certification from the fuel supplier, as described under \$60.48c(f)(1), (2), or (3), as applicable.
- (i) The owner or operator of an affected facility seeking to demonstrate compliance with the SO_2 standards under §60.42c(c)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour averaged firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the

affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

(j) The owner or operator of an affected facility shall use all valid SO_2 emissions data in calculating ${}^{\circ}\!\!\!/ P_s$ and E_{ho} under paragraphs (d), (e), or (f) of this section, as applicable, whether or not the minimum emissions data requirements under ${}^{\circ}\!\!\!/ 60.46c(f)$ are achieved. All valid emissions data, including valid data collected during periods of startup, shutdown, and malfunction, shall be used in calculating ${}^{\circ}\!\!\!/ P_s$ or E_{ho} pursuant to paragraphs (d), (e), or (f) of this section, as applicable.

§ 60.45c Compliance and performance test methods and procedures for particulate matter.

- (a) The owner or operator of an affected facility subject to the PM and/or opacity standards under §60.43c shall conduct an initial performance test as required under §60.8, and shall conduct subsequent performance tests as requested by the Administrator, to determine compliance with the standards using the following procedures and reference methods.
- (1) Method 1 shall be used to select the sampling site and the number of traverse sampling points. The sampling time for each run shall be at least 120 minutes and the minimum sampling volume shall be 1.7 dry square cubic meters (dscm) [60 dry square cubic feet (dscf)] except that smaller sampling times or volumes may be approved by the Administrator when necessitated by process variables or other factors.
- (2) Method 3 shall be used for gas analysis when applying Method 5, Method 5B, of Method 17.
- (3) Method 5, Method 5B, or Method 17 shall be used to measure the concentration of PM as follows:
- (i) Method 5 may be used only at affected facilities without wet scrubber systems.
- (ii) Method 17 may be used at affected facilities with or without wet scrubber systems provided the stack gas temperature does not exceed a temperature of 160 °C (320 °F). The procedures of Sections 2.1 and 2.3 of Method 5B may be used in Method 17 only if Method 17 is used in conjuction with a wet scrub-

ber system. Method 17 shall not be used in conjuction with a wet scrubber system if the effluent is saturated or laden with water droplets.

- (iii) Method 5B may be used in conjunction with a wet scrubber system.
- (4) For Method 5 or Method 5B, the temperature of the sample gas in the probe and filter holder shall be monitored and maintained at 160 °C (320 °F).
- (5) For determination of PM emissions, an oxygen or carbon dioxide measurement shall be obtained simultaneously with each run of Method 5, Method 5B, or Method 17 by traversing the duct at the same sampling location.
- (6) For each run using Method 5, Method 5B, or Method 17, the emission rates expressed in ng/J (lb/million Btu) heat input shall be determined using:
- (i) The oxygen or carbon dioxide measurements and PM measurements obtained under this section,
 - (ii) The dry basis F-factor, and
- (iii) The dry basis emission rate calculation procedure contained in Method 19 (appendix A).
- (7) Method 9 (6-minute average of 24 observations) shall be used for determining the opacity of stack emissions.
- (b) The owner or operator of an affected facility seeking to demonstrate compliance with the PM standards under §60.43c(b)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

§60.46c Emission monitoring for sulfur dioxide

(a) Except as provided in paragraphs (d) and (e) of this section, the owner or

Appendix A: Emissions Calculations **VOC and Particulate** From Surface Coating Operations

Company Nai Prince manufacturing, Inc.

Address City 105 Industrial Parkway, Waterloo, IN 46793

Registration 1033-11864-00068 Reviewer: Aida De Guzman Date: March 7, 2000

	Density	Weight % Volatile	Moight 9/	Weight %	Volume	Volume %	Gal of Mat.	Maximum	Pounds VOC per gallon of	Pounds VOC	Potential	Potential VOC	Potential	Particulate	lb	Transfer	
Material	(Lb/Gal)	(H20 &	Water	Organics	% Water	Non-Volatiles	(gal/unit)	(unit/hour)	coating less	per gallon of	VOC pounds	pounds per	VOC tons	Potential	VOC/gal	Efficienc	
	(==:-	Organics)		3	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(solids)	(3)	(=,	water	coating	per hour	day	per year	(ton/yr)	solids	У	Substrate
Paint Booth, PB 1																	
White epoxy	14.4	20.77%	0.0%	20.8%	0.0%	57.56%	0.00000	0.000	2.98	2.98	0.00	0.00	0.00	0.00	5.18	0%	
Primer N-3580A Activ	8.0	24.97%	0.0%	25.0%	0.0%	70.50%	0.00000	0.000	1.99	1.99	0.00	0.00	0.00	0.00	2.82	0%	Chromate
Coating Mixture As A	13.1	21.29%	0.0%	21.3%	0.0%	60.15%	0.00335	60.000	2.78	2.78	0.56	13.42	2.45	2.26	4.63	75%	Aluminum
Green 383	12.7	30.09%	0.0%	30.1%	0.0%	46.00%	0.00000	0.000	3.81	3.81	0.00	0.00	0.00	0.00	8.28	0%	'Military
Catalyst V93V20	8.8	25.00%	0.0%	25.0%	0.0%	70.00%	0.00000	0.000	2.21	2.21	0.00	0.00	0.00	0.00	3.16	0%	'Radio Cha
Coating Mixture As A	11.9	29.41%	0.0%	29.4%	0.0%	50.20%	0.00353	60.000	3.50	3.50	0.74	17.79	3.25	1.95	6.97	75%	
Paint Booth, PB 2																	
White epoxy	14.4	20.77%	0.0%	20.8%	0.0%	57.56%	0.00000	0.000	2.98	2.98	0.00	0.00	0.00	0.00	5.18	0%	
Primer N-3580A Activ	8.0	24.97%	0.0%	25.0%	0.0%	70.50%	0.00000	0.000	1.99	1.99	0.00	0.00	0.00	0.00	2.82	0%	Chromate
Coating Mixture As A	13.1	21.29%	0.0%	21.3%	0.0%	60.15%	0.00335	60.000	2.78	2.78	0.56	13.42	2.45	2.26	4.63	75%	Aluminum
Green 383	12.7	30.09%	0.0%	30.1%	0.0%	46.00%	0.00000	0.000	3.81	3.81	0.00	0.00	0.00	0.00	8.28	0%	'Military
Catalyst V93V20	8.8	25.00%	0.0%	25.0%	0.0%	70.00%	0.00000	0.000	2.21	2.21	0.00	0.00	0.00	0.00	3.16	0%	'Radio Cha
Coating Mixture As A	11.9	29.41%	0.0%	29.4%	0.0%	50.20%	0.00353	60.000	3.50	3.50	0.74	17.79	3.25	1.95	6.97	75%	
Paint Booth, PB3																	
White epoxy	14.4	20.77%	0.0%	20.8%	0.0%	57.56%	0.00000	0.000	2.98	2.98	0.00	0.00	0.00	0.00	5.18	0%	
Primer N-3580A Activ	8.0	24.97%	0.0%	25.0%	0.0%	70.50%	0.00000	0.000	1.99	1.99	0.00	0.00	0.00	0.00	2.82	0%	Chromate
Coating Mixture As A	13.1	21.29%	0.0%	21.3%	0.0%	60.15%	0.00335	60.000	2.78	2.78	0.56	13.42	2.45	2.26	4.63	75%	Aluminum
Green 383	12.7	30.09%	0.0%	30.1%	0.0%	46.00%	0.00000	0.000	3.81	3.81	0.00	0.00	0.00	0.00	8.28	0%	'Military
Catalyst V93V20	8.8	25.00%	0.0%	25.0%	0.0%	70.00%	0.00000	0.000	2.21	2.21	0.00	0.00	0.00	0.00	3.16	0%	'Radio Cha
Coating Mixture As A	11.9	29.41%	0.0%	29.4%	0.0%	50.20%	0.00353	60.000	3.50	3.50	0.74	17.79	3.25	1.95	6.97	75%	
Paint Booth , PB4																	
Spray Fil	14.4	18.00%	0.0%	18.0%	0.0%	62.00%	0.00000	0.000	2.59	2.59	0.00	0.00	0.00	0.00	4.18	0%	
Catalyst	9.3	27.00%	0.0%	27.0%	0.0%	62.00%	0.00000	0.000	2.51	2.51	0.00	0.00	0.00	0.00	4.05	0%	Plastic
Reducer R7 K84	7.3	100.00%	0.0%	100.0%	0.0%	0.00%	0.00000	0.000	7.25	7.25	0.00	0.00	0.00	0.00	ERR	0%	Bowling
Coating Mixture	13.4	21.00%	0.0%	21.0%	0.0%	60.50%	0.03300	6.000	2.81	2.81	0.56	13.37	2.44	2.30	4.65	75%	Bowl
Tplus Coating	14.4	19.00%	0.0%	19.0%	0.0%	63.00%	0.00000	0.000	2.74	2.74	0.00	0.00	0.00	0.00	4.34	0%	Return
Catalyst	9.3	27.00%	0.0%	27.0%	0.0%	62.00%	0.00000	0.000	2.51	2.51	0.00	0.00	0.00	0.00	4.05	0%	Hoods
Reducer R7 K84	7.3	100.00%	0.0%	100.0%	0.0%	0.00%	0.00000	0.000	7.25	7.25	0.00	0.00	0.00	0.00	ERR	0%	
Coating Mixture As A	12.4	28.00%	0.0%	28.0%	0.0%	52.00%	0.03400	6.000	3.46	3.46	0.71	16.94	3.09	1.99	6.66	75%	

State Potential Emissions

Add worst case coating to all solvents

12.84 9.08

METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/qal) * Gal of Material (qal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)

Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)

Total = Worst Coating + Sum of all solvents used